a part of the body usually covered, the radiation of heat from it increases, not always constantly, but with variations, and this increase is more rapid if the surrounding temperature is low. Parts normally uncovered, as the hand and face, radiate heat about uniformly all times of day. Under the same meteorological conditions of atmospheric humidity and barometric state, radiation in the same person varies from day to day, as does the relative radiation from different parts of the body. Radiation is least on parts of the body covered with hair; it is more on flexor than on extensor sides of the limbs, especially the arms; on symmetrical points it varies but little in adults, but sometimes much in children; the average radiation from covered parts is less in women than in men. Extensive tables of the amount of radiation from equal surfaces of different parts of the body are given. A moderately cold or warm bath increases radiation afterward, as well as after exercise or friction. After the inward use of antipyretics, radiation increases as the bodily temperature sinks. The author believes the cause for increase and decrease of radiation is to be sought in a change of the physical and chemical constitution of tissues which is under the control of the nervous system.

Einfluss des Nervensystems auf die thierische Temperatur. Von Dr. UGOLINO MOSSO. Virchow's Archiv, October, 1886.

This prize thesis, by a young brother of the well known physiologist of Turin, is a résumé of a more extended paper published in Italian. The valuable work of Heidenhain in 1884 presents the history of the conclusion now so fundamental in physiology, that muscle contraction develops heat. It is only bad batteries, however, that do so. If it could be shown that heat continues to be developed after the muscle has ceased to contract, that the increase of heat is not proportional to the work, that by the constant contraction of a muscle the temperature of an organism cannot be increased, and that the temperature of the body may diminish while the muscular work remains the same, then it may be inferred that heat production is an attendant but not necessary phenomenon of contraction. The first of the above statements was proven by stimulating reflex frogs, from the thighs of which calorimetric readings were taken. Dogs were allowed to run inside wheels six metres in circumference for six hours, and rectal measurements of temperature showed, after a rapid rise for the first hour, a gradual sinking for the following five hours, reaching the intermediate point between extremes of temperature at the beginning and end of the first hour, and at rest sinking rapidly below the former. The temperature of Dr. Mosso's body during a two days' march was not in relation to the work done. Again, strychnine increases the temperature of the animal body, even after it has fallen through the influence of curara, and in spite of the most complete immobility of the muscles. In dogs the rectal increase thus obtained is as much as three degrees. Of the three places, brain, sinus, and rectum, where measurements were taken, which were about alike, the sinus temperature always decreased with muscle work. In experimenting with drugs causing convulsions, temperature always increased before cramps, and the blood temperature in the right sinus often fell during cramps. In curarized animals a rapid and lasting elevation of temperature was observed as a result of the infliction of pain.

Similar elevation of temperature was observed in man as a result of pain, but here the conditions were more complicated. The rectal temperature of dogs, which is very susceptible of variation, rose sharply at sound of a gun, and still more from the emotions connected with bringing them from the cool cellar, where they spent the night, into the laboratory, and also on seeing other dogs. Emotion also increased the temperature of pigeons. A strong emotion of joy caused in the author an increase of temperature amounting to nearly a degree, which had only sunk to half a degree four hours later.

Four Cerebral Heat-Centres. By ISAAC OTT, M. D., and WILLIAM S. CARTER. Therapeutic Gazette, Sept. 15, 1887.

In previously published results Dr. Ott claims to have shown that fever is mainly a disease of the nervous centres; that albumoses, peptones, the leucomaine neurine, produce fever through the nervous system; that antipyretics produce fever by acting on it, and that the ascription of fever, sleep, and the action of peripheral irritants to modifications of circulation is entirely erroneous. In this article he attempts to define more minutely the heat centres which he claims to have been the first to discover about the corpus striatum. The method was calorimetric observations on trephined rabbits. Four centres are found: 1, in front of and beneath the corpus striatum; 2, on the median side of the nodus curiosius; 3, the parts about Schiff's crying centre; 4, the anterior inner end of the optic thalamus. The last causes the highest rise of temperature, but the elevation caused by 2 and 3 lasts longer, sometimes more than three days. These centres have excitory and inhibitory power. Respiratory and circulatory changes attending puncture have no thermal effect. Puncture may either remove their inhibition on the spinal thermogenic centres, or cause them to act with these as exciting centres in exciting increased chemical metamorphosis of tissue. In an earlier article (*Journal of Nervous and Mental Diseases*, July, 1887) Dr. Ott claims to have shown that the thermo-inhibitory fibres decussate at the nib of the calamus, and in still another, this indefatigable experimenter (all in his private laboratory at Easton, Pa.) has explored the relation of the thermogenetic apparatus to atropine (*Therapeutie Gazette*, August, 1887).

Reactionszeiten der Temperatur-Empfindungen. Von GOLDSCHEIDER. Berlin. Physiolog. Gesellschaft, June, 1887.

A suspended metallic ball was so hung that displacement of it involved the breaking of an electric circuit for chronological measurement. The stimulus was made with closed eyes and by active motions of the person stimulated, and upon many different dermal points. The chief results were that temperature sensations come to consciousness later than those of contact, that cold is perceived much sooner than heat (15° C. and 50° C.), and that this difference increased with the distance from the brain, till it reached the relatively enormous amount of about half a second. With feebler degrees of thermal stimulation both the average and personal errors increased, as did the time. Still greater retardation of sensation from heat has been observed (Stern–Oppenheim) in tabes. Goldscheider does not think this difference between warm and cold due to different centripetal paths nor to difference in peripheral stimulation. The cause is not yet apparent.